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CHAPTER I

GROUND OF CONFLICT

RELIGION and Science are two aspects of social life, of which the former has been important as far back as we know anything of man's mental history, while the latter, after a fitful flickering existence among the Greeks and Arabs, suddenly sprang into importance in the sixteenth century, and has ever since increasingly moulded both the ideas and the institutions among which we live. Between religion and science there has been a prolonged conflict, in which, until the last few years, science has invariably proved victorious. But the rise of new religions in Russia and Germany, equipped with new means of missionary activity provided by science, has again put the issue in doubt, as it was at the beginning of the scientific epoch, and has made it again important to examine the grounds and the history of the warfare waged by traditional religion against scientific knowledge.

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Science is the attempt to discover, by means of observation, and reasoning based upon it, first, particular facts about the world, and then laws connecting facts with one another and (in fortunate cases) making it possible to predict future occurrences. Connected with this theoretical aspect of science there is scientific technique, which utilizes scientific knowledge to produce comforts and luxuries that were impossible, or at least much more expensive, in a pre-scientific era. It is this latter aspect that gives such great importance to science even for those who are not scientists.

Religion, considered socially, is a more complex phenomenon than science. Each of the great historical religions has three aspects: (1) a Church, (2) a creed, and (3) a code of personal morals. The relative importance of these three elements has varied greatly in different times and places. The ancient religions of Greece and Rome, until they were made ethical by the Stoics, had not very much to say about personal morals; in Islam the Church has been unimportant in comparison with the temporal monarch; in modern Protestantism there is a tendency to relax the rigors of the creed. Nevertheless, all three elements,

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hare chews the cud. Such assertions, when they are refuted by scientific observation, cause difficulties for those who believe, as most Christians did until science forced them to think otherwise, that every word of the Bible is divinely inspired. But when the Biblical assertions concerned have no inherent religious importance, it is not difficult to explain them away, or to avoid controversy by deciding that the Bible is only authoritative on matters of religion and morals. There is, however, a deeper conflict when science controverts some important Christian dogma, or some philosophical doctrine which theologians believe essential to orthodoxy. Broadly speaking, the disagreements between religion and science were, at first, of the former sort, but have gradually become more and more concerned with matters which are, or were, considered a vital part of Christian teaching.

Religious men and women, in the present day, have come to feel that most of the creed of Christendom, as it existed in the Middle Ages, is unnecessary, and indeed a mere hindrance to the religious life. But if we are to understand the opposition which science encountered, we must enter imaginatively into the system of ideas which made

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though in varying proportions, are essential to religion as a social phenomenon, which is what is chiefly concerned in the conflict with science. A purely personal religion, so long as it is content to avoid assertions which science can disprove, may survive undisturbed in the most scientific age.

Creeds are the intellectual source of the conflict between religion and science, but the bitterness of the opposition has been due to the connection of creeds with Churches and with moral codes. Those who questioned creeds weakened the authority, and might diminish the incomes, of Churchmen; moreover, they were thought to be undermining morality, since moral duties were deduced by Churchmen from creeds. Secular rulers, therefore, as well as Churchmen, felt that they had good reason to fear the revolutionary teaching of the men of science.

In what follows, we shall not be concerned with science in general, nor yet with religion in general, but with those points where they have come into conflict in the past, or still do so at the present time. So far as Christendom is concerned, these conflicts have been of two kinds. Sometimes there happens to be a text in the Bible making some assertion as to a matter of fact, for example, that the

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such opposition seem reasonable. Suppose a man were to ask a priest why he should not commit murder. The answer "because you would be hanged" was felt to be inadequate, both because the hanging would need justification, and because police methods were so uncertain that a large proportion of murderers escaped. There was, however, an answer which, before the rise of science, appeared satisfactory to almost everyone, namely, that murder is forbidden by the Ten Commandments, which were revealed by God to Moses on Mount Sinai. The criminal who eluded earthly justice could not escape from the Divine wrath, which had decreed for impenitent murderers a punishment infinitely more terrible than hanging. This argument, however, rests upon the authority of the Bible, which can only be maintained intact if the Bible is accepted as a whole. When the Bible seems to say that the earth does not move, we must adhere to this statement in spite of the arguments of Galileo, since otherwise we shall be giving encouragement to murderers and all other kinds of malefactors. Although few would now accept this argument, it cannot be regarded as absurd, nor should those who acted upon it be viewed with moral reprobation.

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The mediaeval outlook of educated men had a logical unity which has now been lost. We may take Thomas Aquinas as the authoritative exponent of the creed which science was compelled to attack. He maintained—and his view is still that of the Roman Catholic Church—that some of the fundamental truths of the Christian religion could be proved by the unaided reason, without the help of revelation. Among these was the existence of an omnipotent and benevolent Creator. From His omnipotence and benevolence it followed that He would not leave His creatures without knowledge of His decrees, to the extent that might be necessary for obeying His will. There must therefore be a Divine revelation, which, obviously, is contained in the Bible and the decisions of the Church. This point being established, the rest of what we need to know can be inferred from the Scriptures and the pronouncements of œcumenical Councils. The whole argument proceeds deductively from premisses formerly accepted by almost the whole population of Christian countries, and if the argument is, to the modern reader, at times faulty, its fallacies were not apparent to the majority of learned contemporaries.

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be discarded and a new one must be invented. However many facts are found to fit the hypothesis, that does not make it certain, although in the end it may come to be thought in a high degree probable; in that case, it is called a theory rather than a hypothesis. A number of different theories, each built directly upon facts, may become the basis for a new and more general hypothesis from which, if true, they all follow; and to this process of generalization no limit can be set. But whereas, in mediaeval thinking, the most general principles were the starting point, in science they are the final conclusion—final, that is to say, at a given moment, though liable to become instances of some still wider law at a later stage.

A religious creed differs from a scientific theory in claiming to embody eternal and absolutely certain truth, whereas science is always tentative, expecting that modifications in its present theories will sooner or later be found necessary, and aware that its method is one which is logically incapable of arriving at a complete and final demonstration. But in an advanced science the changes needed are generally only such as serve to give slightly greater accuracy; the old

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Now logical unity is at once a strength and a weakness. It is a strength because it insures that whoever accepts one stage of the argument must accept all later stages; it is a weakness because whoever rejects any of the later stages must also reject some, at least, of the earlier stages. The Church, in its conflict with science, exhibited both the strength and the weakness resulting from the logical coherence of its dogmas.

The way in which science arrives at its beliefs is quite different from that of mediaeval theology. Experience has shown that it is dangerous to start from general principles and proceed deductively, both because the principles may be untrue and because the reasoning based upon them may be fallacious. Science starts, not from large assumptions, but from particular facts discovered by observation or experiment. From a number of such facts a general rule is arrived at, of which, if it is true, the facts in question are instances. This rule is not positively asserted, but is accepted, to begin with, as a working hypothesis. If it is correct, certain hitherto unobserved phenomena will take place in certain circumstances. If it is found that they do take place, that so far confirms the hypothesis; if they do not, the hypothesis must

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theories remain serviceable where only rough approximations are concerned, but are found to fail when some new minuteness of observation becomes possible. Moreover, the technical inventions suggested by the old theories remain as evidence that they had a kind of practical truth up to a point. Science thus encourages abandonment of the search for absolute truth, and the substitution of what may be called "technical" truth, which belongs to any theory that can be successfully employed in inventions or in predicting the future. "Technical" truth is a matter of degree: a theory from which more successful inventions and predictions spring is truer than one which gives rise to fewer. "Knowledge" ceases to be a mental mirror of the universe, and becomes merely a practical tool in the manipulation of matter. But these implications of scientific method were not visible to the pioneers of science, who, though they practised a new method of pursuing truth, still conceived truth itself as absolutely as did their theological opponents.

An important difference between the mediaeval outlook and that of modern science is in regard to authority. To the schoolmen, the Bible, the dogmas of the Catholic faith,

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and (almost equally) the teachings of Aristotle, were above question ; original thought, and even investigation of facts, must not overstep the limits set by these immutable boundaries of speculative daring. Whether there are people at the antipodes, whether Jupiter has satellites, and whether bodies fall at a rate proportional to their mass, were questions to be decided, not by observation, but by deduction from Aristotle or the Scriptures. The conflict between theology and science was quite as much a conflict between authority and observation. The men of science did not ask that propositions should be believed because some important authority had said they were true ; on the contrary, they appealed to the evidence of the senses, and maintained only such doctrines as they believed to be based upon facts which were patent to all who chose to make the necessary observations. The new method achieved such immense successes, both theoretical and practical, that theology was gradually forced to accommodate itself to science. Inconvenient Bible texts were interpreted allegorically or figuratively ; Protestants transferred the seat of authority in religion, first from the Church and the Bible to the Bible alone, and then

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to the individual soul. It came gradually to be recognized that the religious life does not depend upon pronouncements as to matters of fact, for instance, the historical existence of Adam and Eve. Thus religion, by surrendering the outworks, has sought to preserve the citadel intact—whether successfully or not remains to be seen.

There is, however, one aspect of the religious life, and that perhaps the most desirable, which is independent of the discoveries of science, and may survive whatever we may come to believe as to the nature of the universe. Religion has been associated, not only with creeds and churches, but with the personal life of those who felt its importance. In the best of the saints and mystics, there existed in combination the belief in certain dogmas and a certain way of feeling about the purposes of human life. The man who feels deeply the problems of human destiny, the desire to diminish the sufferings of mankind, and the hope that the future will realize the best possibilities of our species, is nowadays often said to have a religious outlook, however little he may accept of traditional Christianity. In so far as religion consists in a way of feeling, rather than in a set of beliefs, science cannot touch it.

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Perhaps the decay of dogma may, psychologically, make such a way of feeling temporarily more difficult, because it has been so intimately associated with theological belief. But this difficulty need not endure for ever ; in fact, many freethinkers have shown in their lives that this way of feeling has no essential connection with a creed. No real excellence can be inextricably bound up with unfounded beliefs ; and if theological beliefs are unfounded, they cannot be necessary for the preservation of what is good in the religious outlook. To think otherwise is to be filled with fears as to what we may discover, which will interfere with our attempts to understand the world ; but it is only in the measure in which we achieve such understanding that true wisdom becomes possible.